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ZA, 2003, V5, P411, CURR ATHEROSCLER REP'

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**S4**            282    S S3 AND PY<=2003

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**Polarization of the RF field in a human head at high field: A study with a quadrature surface coil at 7.0 T**

**Author:** Wang JH; Yang QX (REPRINT) ; Zhang XL; Collins CM; Smith MB; Zhu XH; Adrian G; Ugurbil K; Chen W

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**Abstract:** The RF field intensity distribution in the human brain becomes inhomogeneous due to wave behavior at high field. This is further complicated by the spatial distribution of RF field polarization that must be considered to predict image intensity distribution. An additional layer of complexity is involved when a **quadrature** coil is used for transmission and reception. To study such complicated RF field behavior, a computer modeling method was employed to investigate the RF field of a **quadrature** surface coil at 300 MHz. Theoretical and experimental results for a phantom and the human head at 7.0 T are presented. The results are theoretically important and practically useful for high-field **quadrature** coil design and application.

**Descriptors--Author Keywords:** computer modeling ; high field MRI ; RF field polarization ; RF coil

**Identifiers-- KeyWord Plus(R):** SIMULTANEOUS RECEPTION; BIRDCAGE COIL; SENSITIVITY; SYSTEM; POWER; NMR; MRI; SPECTROSCOPY; HOMOGENEITY; RESONATORS

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